

CLAIMS

1. A method for routing packets in a network in conjunction with a quality of service guarantee, comprising:
 - receiving a packet having a header section and a payload section;
 - 5 inspecting the payload section of the packet in a network core for use in determining how to route the packet;
 - determining a quality of service guarantee for the packet; and
 - selectively routing the packet based upon the inspecting and the quality of service guarantee.
- 10 2. The method of claim 1 wherein the inspecting step includes determining whether information in the payload section matches content predicate information in a structure associating the content predicate information with corresponding network destinations.
3. The method of claim 1, further including performing the inspecting step at a router in the network core.
- 15 4. The method of claim 1 wherein the inspecting step includes matching a filter to information in the payload section.
5. The method of claim 4, further including propagating the filter to a router in the network for use in performing the inspecting.
6. The method of claim 1, further including programming a router in the network for
20 performing the receiving, inspecting, and routing steps.
7. The method of claim 1 wherein the inspecting step includes inspecting attributes for use in determining how to route the packet or whether to drop the packet altogether.
8. A method for routing messages in a network, comprising:
 - receiving a message having a header section, at least one subject, and at least one
25 attribute;
 - retrieving the subject and the attribute from the message;
 - retrieving a subscription based upon the subject;
 - determining a quality of service guarantee for the message;

applying the attribute to the subscription in a network core in order to determine how to route the message; and

selectively routing the message based upon the applying and the quality of service guarantee.

5 9. The method of claim 8 wherein the retrieving the subscription step includes retrieving a filter corresponding with the subscription.

10. The method of claim 8, further including routing the message if the attribute satisfies the subscription.

11. The method of claim 8, further including discarding the message if the attribute
10 does not satisfy the subscription.

12. The method of claim 8, further including:

retrieving a plurality of filters corresponding with a plurality of subscriptions;

retrieving a plurality of attributes from the message;

15 matching each of the attributes to each of the filters to determine if any of the corresponding subscriptions are satisfied; and

selectively routing the message based upon whether any of the subscriptions are satisfied.

13. The method of claim 8, further including performing the inspecting step at a router in the network core.

20 14. An apparatus for routing packets in a network in conjunction with a quality of service guarantee, comprising:

a module for receiving a packet having a header section and a payload section;

at least one module for inspecting the payload section of the packet in a network core for use in determining how to route the packet;

25 a module for determining a quality of service guarantee for the packet; and

a module for selectively routing the packet based upon the inspection results obtained from and the quality-of-service guarantees determined by the steps above.

15. The apparatus of claim 14 wherein the inspecting module includes a module for determining whether information in the payload section matches content predicate

information in a structure associating the content predicate information with corresponding network destinations or corresponding rules governing in-router processing.

16. The apparatus of claim 14, further including a module for performing the
5 inspecting step at a router in the network core.

17. The apparatus of claim 14 wherein the inspecting module includes a module for matching a filter to information in the payload section.

18. The apparatus of claim 17, further including a module for propagating the filter to a router in the network for use in performing the inspecting.

10 19. The apparatus of claim 14, further including a module for programming a router in the network for performing the receiving, inspecting, and processing.

20. The apparatus of claim 14, wherein the apparatus is a router.

21. An apparatus for routing messages in a network, comprising:

15 a module for receiving a message having a header section, at least one subject, and at least one attribute;

a module for retrieving the subject and the attribute from the message;

a module for retrieving a subscription based upon the subject;

a module for matching the attribute to the subscription in a network core in order to determine how to route the message; and

20 a module for determining a quality of service guarantee for the packet.

22. The apparatus of claim 21 wherein the module for retrieving the subscription includes a module for retrieving a filter corresponding with the subscription.

23. The apparatus of claim 21, further including a module for selective routing the message if the attribute satisfies the subscription and based on the quality of service
25 guarantee.

24. The apparatus of claim 21, further including a module for discarding the message if the attribute does not satisfy any of the subscriptions stored at the router.

25. The apparatus of claim 21, further including:

a module for retrieving a plurality of filters corresponding with a plurality of subscriptions;

a module for retrieving a plurality of attributes from the message;

5 a filtering module for matching each of the attributes to each of the filters to determine if any of the corresponding subscriptions are satisfied; and

a module for selectively routing the message based upon whether any of the subscriptions are satisfied.

26. The apparatus of claim 21, further including one or more modules for performing the filtering step at a router in the network core.

10 27. The apparatus of claim 21, wherein the apparatus is a router.